

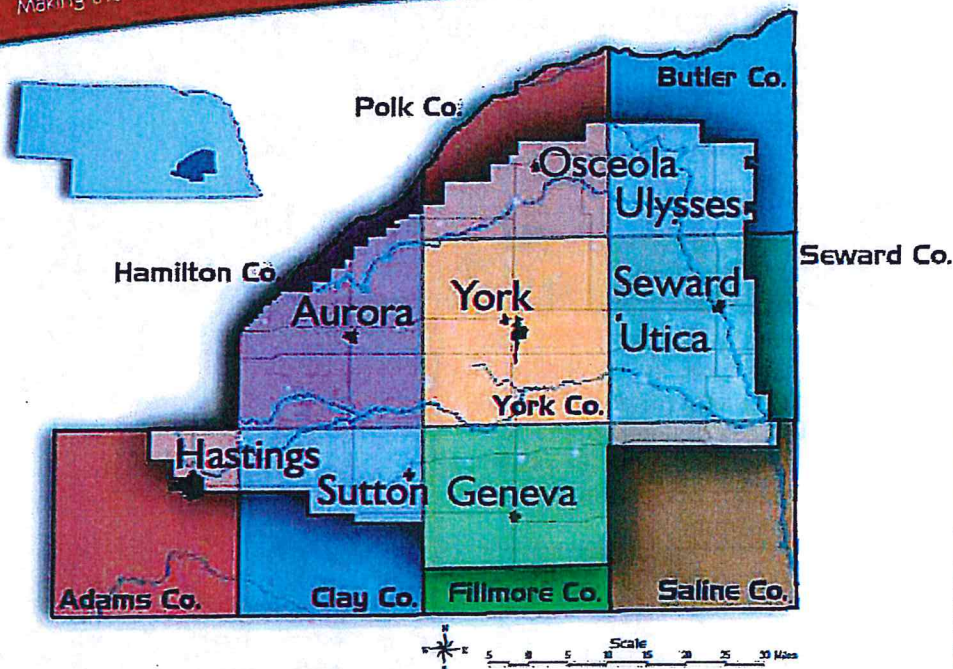
# KNOW YOUR NRD



**UPPER BIG BLUE**  
Natural Resources District  
York, NE

2016

Nebraska's Natural Resources Districts  
Making the Good Life Better Since 1972



## UPPER BIG BLUE NRD

### Upper Big Blue NRD Water Quality & Quantity FACTS

Groundwater irrigated acres: 1.2 million  
2015 irrigation water use averaged  
4.9 acre inches.

Free water tests (1997-2015):  
Nitrate tests: 3,331  
Bacteria tests: 946

Irrigation flowmeters District-wide:  
11,002 installed

Wellhead Protection Areas established:  
26 communities

*The Upper Big Blue NRD  
water management area is larger  
than the state of Delaware...*

Flood control dams built (1972-2015):  
45 structures

Recreation areas: 5 sites/ 640 acres of  
water and land managed.

Forestry (1975-2015): 1,784,633 trees  
sold

### Protecting Lives



**Who is monitoring  
the safety of our  
drinking water?**  
*Dan Leininger is...*

The Domestic Well  
Testing Program  
keeps rural residents  
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the quality of their drinking water in  
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regulations state that nitrate-  
nitrogen concentrations in drinking  
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million (ppm) are potentially hazard-  
ous to high-risk individuals such as  
infants and the elderly.

In towns, the city government or  
water supplier is required to annual-  
ly inform residents of their water  
quality. In 2015, the NRD tested  
nitrate levels in 263 domestic wells.

### Protecting Property

**Who is working to control floods and  
storm water drainage?** *Jeff Ball is...*

The Upper Big  
Blue NRD has  
built dams to  
ensure the  
safety of our  
District's  
citizens.



These dams are designed as multi-  
purpose/use areas for flood control,  
recreation, habitat establishment,  
water quality protection, and soil  
erosion prevention. Landscapes with  
uncontrolled water sheds can present  
many challenges such as flooding and  
soil erosion. This can cause property  
damage and possible water  
contamination. In other cases,  
uncontrolled areas can cause harm  
to humans and livestock.

### Protecting the Future

**Who ensures that  
my grandchildren  
will have enough  
water in the  
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*Courtney Woodman  
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The purpose for our  
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manage groundwater in times of  
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the water table to rebound from the  
previous irrigation season.  
Reporting and allocation triggers  
have been proactively put in place  
should the groundwater levels fall.



## News to keep you in the "know"...



### Personal Safety: Knowing my family is safe

The Upper Big Blue NRD carries out a variety of projects and programs in groundwater management, land treatment, flood control, forestry, and recreation. The Upper Big Blue NRD staff takes tremendous pride in their work, because they also have families who daily rely upon and use the same resources that they monitor and test.

### Flood Control & Soil Erosion Prevention

One of the main responsibilities of the NRD is flood control because of a variety of rivers and tributaries that flow through the District. With 45 flood control dams District-wide, the Upper Big Blue NRD works with producers, cities and county officials to improve storm water management and run-off. As an added benefit, the Upper Big Blue NRD maintains five recreational sites created through flood control dams that each form a lake for fishing and boating. Hiking, biking, and camping, as well as the development of wildlife habitat, are additional benefits incorporated into the design of these flood control sites. The NRD also works with landowners by cost-sharing on construction or installation of soil and/or water conservation practices. These practices prevent or reduce soil erosion, water contamination, and the overuse of both surface water and groundwater.



### CROP-TIP Agricultural Test Site

The NRD is helping producers increase their bottom-line while implementing conservation measures. This special agricultural test site managed by the NRD helps to demonstrate that calculated use of irrigation water and nitrogen application can help to save producers money, yet still allow similar or sometimes greater yields. This project called CROP-TIP provides information farmers can use as a management tool in their farming operations by measuring the difference of irrigation water applied, energy costs, labor, and yields of sub-surface drip irrigation versus gravity irrigation over a number of years. Soil moisture sensors and data loggers are used to record soil moisture. Atmometers track evapo-transpiration for total crop water use.



### Groundwater Quality

The residents of the District depend on groundwater for their livelihood and life itself. Irrigation dominates agricultural crop production and drives the economic vitality of the region. Groundwater is the sole source of water to sustain human needs. The District monitors groundwater quality in hundreds of private wells and offers free nitrate and bacteria testing for all rural residents. Elevated nitrates are present in several areas due to historic excess nitrogen fertilizer application. District regulatory programs and educational efforts are ongoing to encourage and educate farmers and the general public on the proper use and management of nitrogen fertilizer and irrigation. The goal of these programs is to maintain and improve the quality of the groundwater for future generations.

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- Are leaders in groundwater management
- Use taxpayer dollars efficiently

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"Conservation is the Nature of Our Business"

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## Rule 5 Summary: Groundwater Quantity

2016

### Rule 5 Summary

The following is a summary of the Upper Big Blue NRD Groundwater Quantity Management Area rules and regulations. The revised regulations were adopted by the Board of Directors on August 21, 2014, and became effective October 1, 2014. The complete regulations (Rule 5) is available upon request or may be viewed at [www.upperbigblue.org](http://www.upperbigblue.org).

**WELL PERMITS** -- A well permit is required under any of the following conditions:

1. A new or replacement well designed to withdraw more than 50 gpm.
2. An existing well that currently withdraws 50 gpm or less, is proposed to be modified to withdraw more than 50 gpm.
3. A well is proposed to be combined with another well or wells so that the total withdrawal is greater than 50 gpm.

**Large Water User** -- A permit applicant wishing to withdraw 500 ac. ft. or groundwater or increasing the withdrawal of groundwater by 250 ac. ft or more must conduct a hydrologic evaluation to determine the potential impact to the area groundwater supply and other groundwater users.

**Well Spacing** -- Spacing requirements apply to permitted wells.

Parts of the NRD have been designated a "High Risk Groundwater Area". The following spacing requirements and well construction limits apply in that area only:

1. 2 miles from a municipal well.
2. 1,250 ft. from a high capacity well (>50 gpm).
3. 1,250 ft. from a domestic well under different ownership.
4. A maximum of one well per 80 acre tract or 2 wells per 160 acres.

Well spacing requirement for the rest of the Groundwater Quantity Management Area is 1,000 ft. from a high capacity well under different ownership.

**Replacement Wells** -- Existing wells may be replaced. If the proposed replacement well does not meet the spacing requirements listed above it may be constructed up to 50 ft. closer to other existing wells.

### Groundwater Transfers -- NRD Approval Required

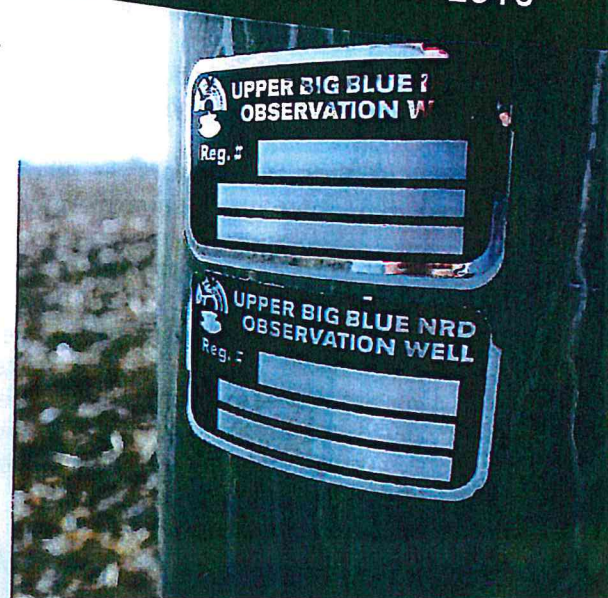
Groundwater transfer in these regulations refers to the pumping of groundwater from one government survey section to another.

1. New groundwater transfers in the High Risk Groundwater Area are prohibited.
2. Groundwater transfers which began before June 21, 2007 may continue.
3. New groundwater transfer must obtain authorization from the NRD.
4. New Groundwater transfers are restricted to an adjacent government survey section.
5. When allocation is implemented new groundwater transfers are prohibited.

### Agricultural groundwater transfer must meet the following criteria:

1. The tract of land to be irrigated (destination tract) must be adjacent to the tract of land where the well is located (source tract).
2. The number of acres irrigated in the destination tract may not be more than the total acres in the source tract.
3. No more than 160 acres may be irrigated by a groundwater transfer.
4. The source well must be less than 3,000 ft. from the nearest point of the destination tract.
5. The source well must be at least 1,000 ft. from all other wells including domestic and stock wells under different ownership.

**Transfer Exceptions** -- Municipal groundwater transfers may be exempted from the District transfer rule by obtaining a Municipal Rural Domestic Ground Water Transfer Permit from the Nebraska Department of Natural Resources. Temporary transfers of groundwater used for construction activities are also exempt.



## RULE 5 Summary Groundwater Quantity continued...

**Reporting Wells And Uses Of Groundwater--** Groundwater users must report the wells and groundwater use under their control:

**Agricultural Users must report the following --** Irrigated lands, wells, land ownership and farm operators.

**Municipal Users must report the following --** Wells, population served, acres in service area, irrigated acres.

**Other User must report the following --** Purpose of groundwater use, wells, historic use, if known.

Changes and additions to information must be reported with 60 days. The District may require additional information as necessary.

**Annual Water Withdrawal Reports --** All groundwater users must file an annual report with the NRD indicating the amount of groundwater withdrawal for the previous calendar year. Withdrawal reports for irrigation are due by December 1<sup>st</sup>. All municipal and other user reports are due March 1<sup>st</sup>.

**Flow Meters --** All flow meters installed after February 1, 2014 must be a brand and/or model approved by the District. The flow meter must totalize in **acre inches** and must include an **anti-reverse feature**. Flow meters installed prior to February 1, 2014 will be considered for approval on a case by case basis. Wells constructed after March 1, 2004 must be equipped with a flow meter. **All wells must be equipped with a flow meter by January 1, 2016.**

**Allocation --** In the spring of 2014, the District Average Groundwater Level was 0.93 feet above the level that would trigger allocation. The District measures the annual change in the District Average Groundwater Level each spring. If the District Average Groundwater Level measured each spring, falls below the allocation trigger in the future, allocation will begin in the next calendar year. **The first groundwater use period will last 3 years. The first groundwater allocation over that period will be 30 inches per certified irrigated acre.** If a second allocation period becomes necessary, it will last 5 years. The second groundwater allocation over the second allocation period will be 45 inches per certified irrigated acre.

Allocation applies to all groundwater users with a well that pumps more than 50 gpm. Municipalities will receive the same amount of groundwater per acre as agricultural users for 1/3 of the land area in the municipality, plus 250 gpm/capita/day. Other Users' allocations will be based on historic use.

**Pooling --** The term "pooling" means the combining of parcels of land for the purpose of allocation. There are 3 types of pools recognized in Rule 5:

**Owner Pool --** All of the land owned by one person or entity and farmed in one operation will receive one allocation for all the acres owned unless the land is part of a well pool or operator pool.

**Well Pool --** If two or more landowners have land irrigated by one well, the land irrigated by that well will receive one allocation. In some cases a well pool could include multiple wells.

**Operation Pool --** Land in one farming operation may be placed in one pool, and thus receive one allocation, if the operator and landowner(s) agree in writing on forms provided by the District.



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## Rule 5 Summary: Groundwater Quality

2016

### Rule 5 Summary

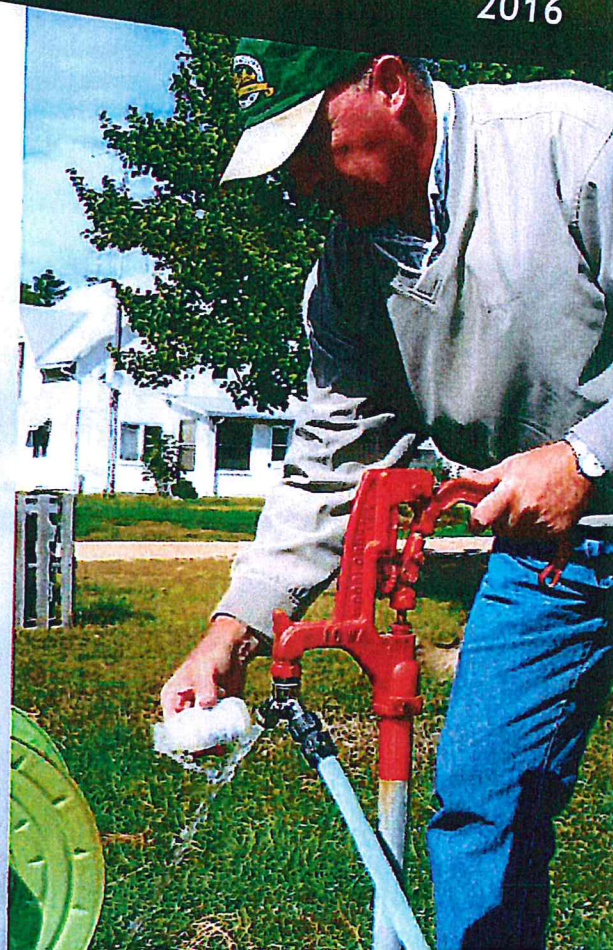
The following is a summary of the Upper Big Blue NRD Ground Water Quality Management Area rules and regulations. The complete regulations (District Rule 5) are available upon request or may be viewed At the [upperbigblue.org](http://upperbigblue.org) website's "Rules and Regulations" page.

**Groundwater Quality Regulations** – The District's groundwater quality regulations are composed for three phases as follow:

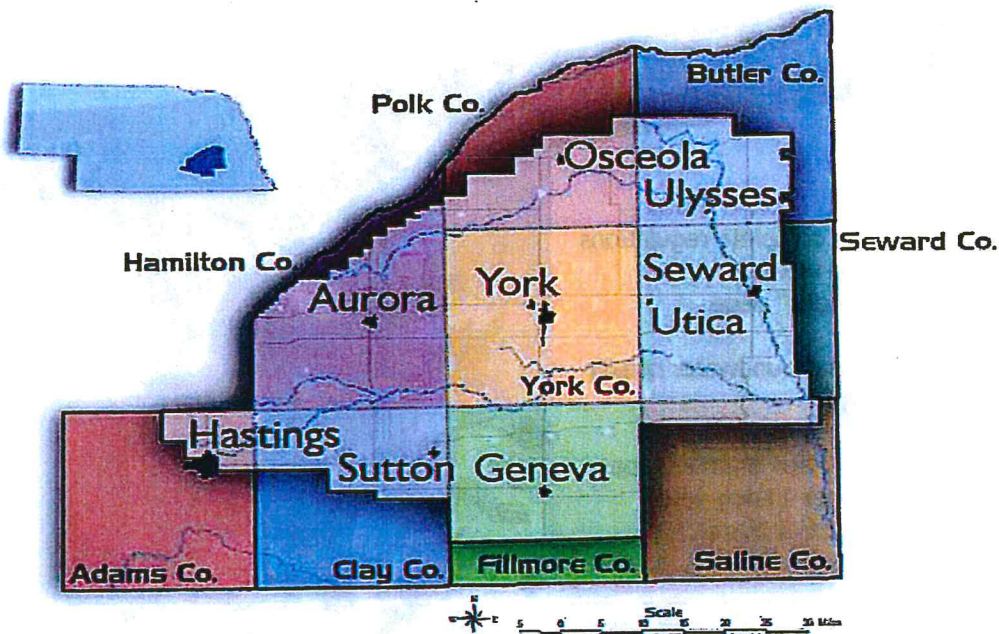
**Phase I** - regulations apply to the entire NRD. Anhydrous ammonia may not applied for spring planted row crops until November 1 each year. Other forms of nitrogen fertilizers may not be applied until March 1. (Exemptions: fertilizing of non-row crops such as wheat, rye, oats, pasture, etc.). The application of manure, municipal sludge or industrial waste must be in compliance with state regulations. The application of fertilizers when nitrogen is not the largest percentage of the formulation and the total nitrogen applied per acre is less than 25 lbs.

**Phase II** - applies to areas where the NRD has determined that the median groundwater nitrate level exceeds 7 parts per million. For information of the townships included in Phase II, contact the NRD office. Requirements include: Requirements include: Phase I requirements continue. Ag producers must attend nutrient management training once every 4 years; Shallow and deep soil sampling to depths of 8 inches for nitrate and organic matter and 24 inches for residual nitrate is required for fields where corn or sorghum follow corn or sorghum; Electrical resistance blocks or capacitance probes used to measure soil moisture must to installed by each farm operator to schedule irrigation in at least one field; and, reports on fertilizer and irrigation management practices must be submitted annually.

**Phase III** - applies to areas where the NRD has determined that the median ground-water nitrate level exceeds 10 parts per million. Currently Zone 5 in central York County is in Phase III. Requirements include: Phase I and II requirements continue. Soil sampling as described in Phase II must be done on a maximum of 40 acre grids; and, irrigation water sampling for nitrates is required; and, irrigation water from each active irrigation well must be tested once every three years for nitrates; and, N-Serve nitrification inhibitor must be applied at the manufacturers recommended rate if nitrogen fertilizer is applied prior to March 1.



## RULE 5 Summary Groundwater Quality continued...



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# Groundwater Transfers

## Upper Big Blue Natural Resources District

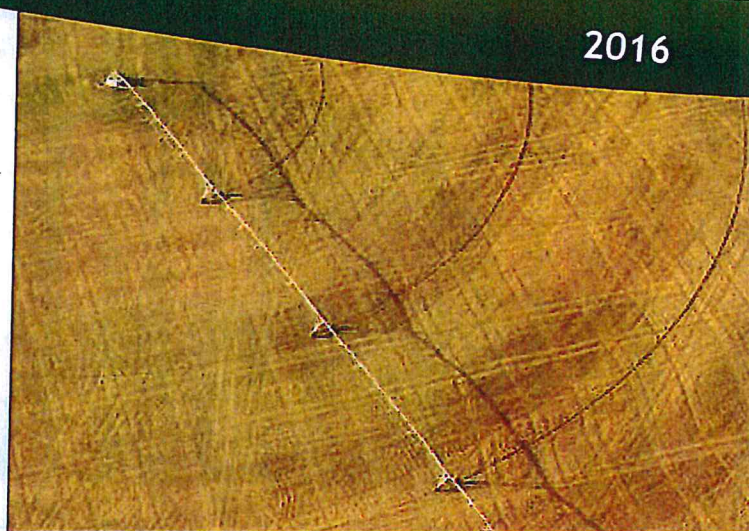


### Groundwater Transfer Authorization

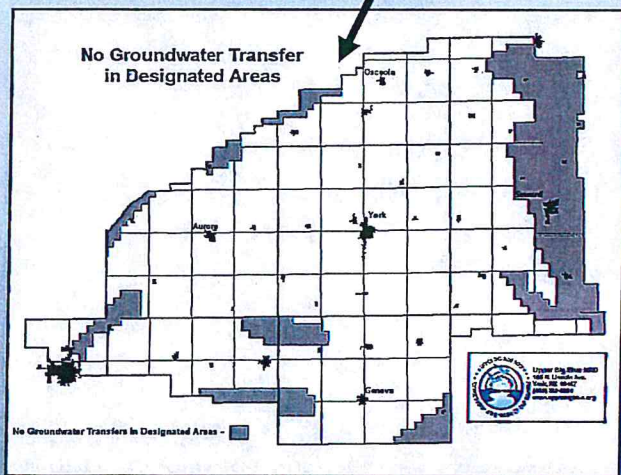
District Groundwater Management Area Rules and Regulations (Rule 5, Chapter 11) require that anyone who wants to transfer groundwater from a well in one section to land in another section must apply for and receive a **"Transfer Authorization"** from the District. The following restrictions apply to groundwater transfers started after **August 1, 2007**:

#### Agricultural Transfers (Irrigation)

- An agricultural groundwater user, shall only be allowed to initiate a new groundwater transfer to a destination tract that is directly adjacent or diagonal to the tract of land on which the groundwater withdrawal originates.
- The acres in the destination tract, to which groundwater is transferred, is limited to an amount less than or equal to the total number of acres in the source tract.
- The maximum transfer to a destination tract shall not exceed one-hundred and sixty (160) acres.
- Beginning July 1, 2013, agricultural groundwater transfers are prohibited in the areas designated as "Transfer Limitation Areas". (See map below)



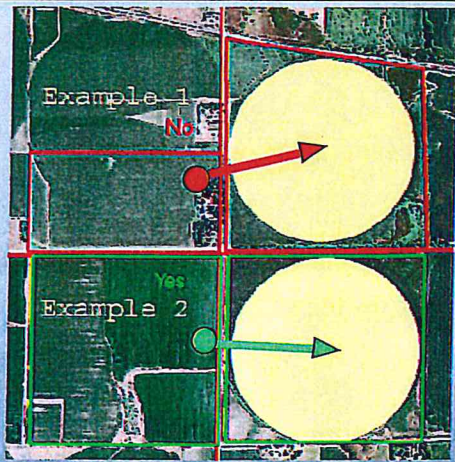
**NOTE:** New groundwater transfers are prohibited when allocation is in effect: New transfers of groundwater from within the District where a groundwater allocation has been established, is prohibited.



#### Typical Transfer Scenarios

**Example 1:** The illustration to the left, shows an agricultural transfer that is not allowed because the source tract does not contain as many acres as the number of acres that are to be irrigated in the destination tract.

**Example 2:** Shows an agricultural transfer that would be allowed because the source tract contains more acres than the number of acres to be irrigated in the destination tract.



#### Municipal and Other Transfers

- A municipal user or other user, as defined in Chapter 4 ¶16.02 and ¶16.03, shall only be allowed to initiate new ground water transfers to a government survey section that is directly adjacent or diagonal to the tract of land on which the ground water withdrawal originates.
- Transfers proposing to withdraw more than two-hundred and fifty (250) acre feet annually shall conduct a hydrologic evaluation as provided in Ch. 5, ¶105.

#### Transfer Exemptions

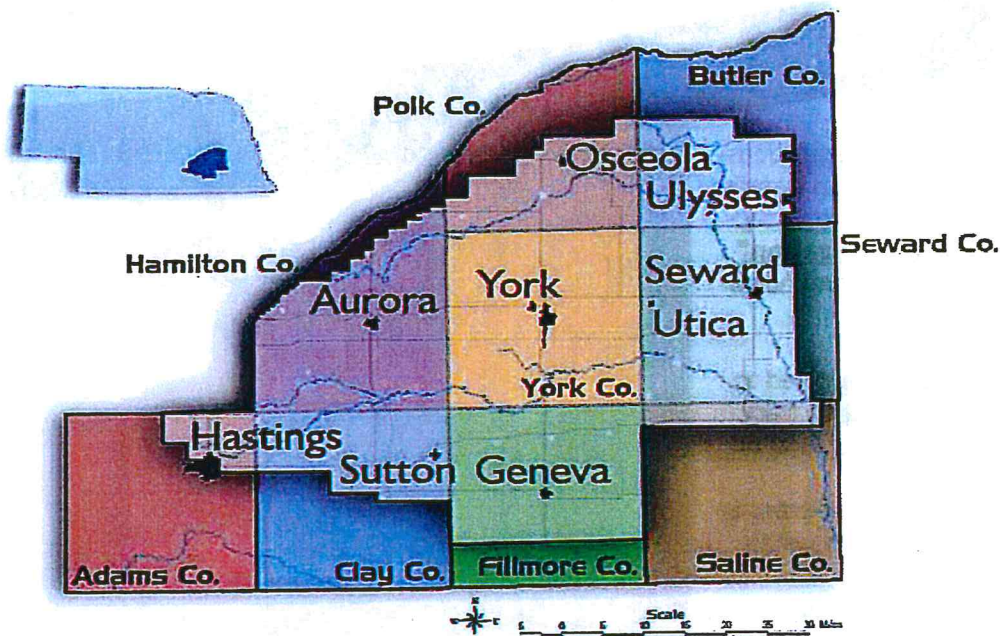
The following types of groundwater transfers do not require District Authorization

- Ground water transfers authorized by the Municipal Rural Domestic Ground Water Transfers Permit Act.
- Transfers of ground water that were started prior to August 1, 2007.
- Ground water transfers within the same government survey section.
- Municipal ground water transfers within the municipalities corporate limits.

#### Groundwater Transfer Application

An application for a groundwater transfer authorization may be obtained by contacting the District or online as [www.upperbigblue.org](http://www.upperbigblue.org). The application must be accompanied by an \$50 filing fee and a completed "United States Citizenship Attestation Form".

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